

### **REMARKS**

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Claims 1, 3, 4, 6, 7, 9-13, 15 and 16 were pending in this application when examined.

Claim 1 has been amended to limit the number of carbon atoms in the organic compound to have “2 to 6 carbon atoms”. Support for this amendment can be found on page 2, line 29 and Experiment 1, which discloses glycol (2 carbon atoms) and citric acid (6 carbon atoms), of the specification.

New claim 20 has been added to define the organic group as one of the specific compounds identified in Experiment 1. Support for this claim can be found in the table on pages 4-5 of the specification.

#### **I. Claim Rejection Under 35 U.S.C. § 103**

The Examiner rejects claims 1, 3-4, 6-7, 9-13 and 15-16 under 35 U.S.C. §103(a) as being unpatentable over Velzel (WO 02/20471). As applied to the amended claims, Applicants respectfully traverse the rejection.

Claim 1 has been amended to recite a method of improving the crushing strength, impact resistance and compressibility of urea granules, comprising adding to molten urea, **both a polyvinyl compound, and an organic compound having 2-6 carbon atoms and 1-10 polar organic groups**, wherein the polar organic groups are selected from hydroxyl, amine and/or amide groups, and the amount of the organic compound in total is at most 1 wt%, based on the amount of molten urea. Accordingly, in the method of claim 1, **both** (1) a polyvinyl compound, and (2) an organic compound having **2-6 carbon atoms** and 1-10 polar organic groups are added to molten urea.

On the other hand, as discussed in the previous response, Velzel teaches a method “characterized in that a urea melt is admixed with an aqueous solution of **a urea additive**, comprising **a polyvinyl compound of the general formula (CHX-CHY)<sub>n</sub>**” (see page 2, lines 31-35) (emphasis added). Accordingly, the reference teaches that a urea additive comprising a polyvinyl compound is added to a urea melt, rather than adding **both** a polyvinyl compound **and a (different) organic compound** to a urea melt (molten urea), as in claim 1 of the present application.

The reference states:

Preferably, the **additive used according to the invention is a polyvinyl compound of the general formula (CHX-CHY)<sub>n</sub>**, where n is a number from 4 to 10 000, and **X and Y independently of one another represent a hydrogen atom or a polar organic group**, such as carboxylic acid radical, ester radical, hydroxyl radical, amine radical, amide radical, more preferably the formula (CH<sub>2</sub>-CHY)<sub>n</sub>, where n = 4-10 000, and **Y = a hydrogen atom or a polar organic group**, such as a carboxylic acid radical, ester radical, hydroxyl radical, amine radical, amide radical, more preferably the formula (CH<sub>2</sub>-CHY)<sub>n</sub>, where n = 4-10 000, and **Y = a mixture of an acetate ester radical and hydroxyl group, preferably 70% or more hydroxyl group, more preferably the formula (CH<sub>2</sub>-CHY)<sub>n</sub>**, where n = 4-10 000, and **Y = a mixture of an acetate ester radical and hydroxyl group, preferably more than 95% hydroxyl group.** (Emphasis added) (see page 3, lines 18-35).

Accordingly, the reference teaches a urea additive comprising a polyvinyl compound of the formula (CHX-CHY)<sub>n</sub>, **wherein Y is a polar organic group. This means that the polyvinyl compound of Velzel has a polar organic group as part of the formula (CHX-CHY)<sub>n</sub>, rather than as a different compound to be added to the urea melt.**

On the other hand, in claim 1 of the present application, both **(1)** a polyvinyl compound, and **(2)** an organic compound having 2-6 carbon atoms and 1-10 polar organic groups are added to molten urea. Therefore, claim 1 includes **two different compounds** added to molten urea.

In order to further distinguish the presently claimed invention over the reference, claim 1 has been amended to recite “an organic compound having 2-6 carbon atoms”.

If **n is 4** in the formula (CHX-CHY)<sub>n</sub> of Velzel (the minimum number), then the minimum number of carbon atoms in the polyvinyl compound of Velzel is **8**.

On the other hand, amended claim 1 recites “an organic compound having 2-6 carbon atoms”. Therefore, even if the Examiner somehow considers the polyvinyl compound of Velzel to be an additional organic compound, this additional organic compound would have a minimum of 8 carbon atoms. On the other hand, the organic compound of amended claim 1 has a maximum of **6** carbon atoms. As a result, the organic compound of claim 1 is further distinguished from the polyvinyl compound of Velzel.

Furthermore, new claim 20 specifically recites that the organic compound is selected from the group consisting of glycol, glycerol, 1,4-butanediol, dimethylolurea, pentaerythritol, bishydroxymethylpropionic acid, tartaric acid, citric acid, lactic acid, succinic acid and gluconic acid. Velzel fails to disclose or suggest these specific organic compounds.

Thus, even if the Examiner considers the polyvinyl compound of Velzel to include an additional organic compound, the reference fails to disclose or suggest that the additional organic compound is glycol, glycerol, 1,4-butanediol, dimethylolurea, pentaerythritol, bishydroxymethylpropionic acid, tartaric acid, citric acid, lactic acid, succinic acid or gluconic acid.

In view of the foregoing, one of ordinary skill in the art would recognize that Velzel does not disclose or suggest a method of improving the crushing strength, impact resistance and compressibility of urea granules, comprising adding to molten urea, **both a polyvinyl compound, and an organic compound having 2-6 carbon atoms and 1-10 polar organic groups**, wherein the polar organic groups are selected from hydroxyl, amine and/or amide groups, and the amount of the organic compound in total is at most 1 wt%, based on the amount of molten urea, as recited in claim 1.

Therefore, claim 1 would not have been obvious over the reference.

Claims 3, 4, 6, 7, 9-13, 15, 16 and new claim 20, depend directly or indirectly from claim 1, and thus also would not have been obvious over the reference.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

## **II. Conclusion**

For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the applied reference.

Therefore, in view of the foregoing amendments and remarks, it is submitted that the rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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